Results: Of the 21 patients, 5 (24%) had mediastinal nodal involvement in different areas on PET compared to CT. In three patients, there were less nodal stations involved on PET vs. CT (stations 10, 5, 7; 4R and 4L, respectively); in two patients, PET identified CT-negative mediastinal stations (station 5 and 7, respectively). PET based planning thus resulted in an increased nodal GTV in 2 patients and a decrease in 3 patients. Taken all patients together, however, there were no significant differences in GTV, lung, and esophageal parameters between CT and PET-based plans. For CT vs. PET: V20 25.6±2.4 vs. 25.6±12.3 % (p=1.00); MLD: 13.7±5.6 vs. 13.7±5.6 Gy (p=0.89); MED: 24.4±8.6 vs. 24.1±8.5 Gy (p=0.50); Dmax: 45.8± 2.9 vs. 45.7±2.9 Gy (p=0.32). For the three patients in whom the nodal GTV decreased with PET, the V20 decreased from 25.5± 4.9 to 22.0±7.1 % (p=0.10); MLD: 13.2±2.5 vs. 11.6±3.3 Gy (p=0.10); MED: 25.0±8.5 vs. 21.0plusmn;5.7 Gy (p=0.10); Dmax: 46.2±0.21 vs. 45.5±0.71 Gy (p=0.32).

Conclusions: Incorporating 18-FDG-PET information in radiotherapy planning in patients with LD-SCLC changed the treatment plan in 24% of patients compared to CT. Both increases and decreases of the GTV were observed, theoretically leading to the avoidance of respectively geographical miss or a decrease of radiation exposure of normal tissues. Based on these findings, a phase II trial, evaluating PET-scan based selective nodal irradiation is ongoing in our department.

PD6-2-1 **Mesothelioman and Other Thoracic Malignancy, Mon, 16:00 - 17:30**

Surgery of pulmonary metastases as a part of multimodality concept

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Introduction: The role of surgery in treatment of pulmonary metastases remains controversial. The treatment strategy depends on localization and histology of the primary tumor, its differentiation degree and number of metastases. Selective group of patients can benefit from curative pulmonary metastasectomy. The purpose of our study was to evaluate the role of aggressive pulmonary metastasectomy as a part of multimodality approach.

Material and Methods: 412 consecutive patients with pulmonary metastases of different origin were operated on in our clinic. The histology of the primary tumor: cancer of different origin - 268, sarcoma - 117 and melanoma - 27. Solitary metastases were diagnosed in 236, 2-3 metastases - in 80 and multiple - in 87 patients. Selection criteria for surgery were: local control of the primary tumor, metastases located in the lungs, except colorectal cancer patients, resistance to conservative therapy.

Results: We performed 487 operations in 412 patients. Wedge resection was performed in 225 (54,7%), lobectomy - in 118 (28,6%), precision technique - in 36 (8,7%), segmentectomy - in 10 (2,4%), pneumonectomy - in 23 (5,6%) patients. Thoracotomy approach was used in 389, sternotomy - in 3, thoracoscopic resection - in 20 patients. Postoperative mortality was 1,2%. Conservative therapy was administered in all patients with poor prognosis. Overall survivals at 5 years were 34,9% of patients with solitary metastases, 21,7% of patients with 2-3 nodules and 14,7% of patients with multiple pulmonary metastases. Better 5-year survival was achieved after surgery of gynecological cancer (45,5%), renal cancer (40,2%), head and neck cancer (38,4%) and colorectal cancer (33,4%). The results decreases in breast cancer (31,6%) and soft-tissue sarcomas (32,5%). No one survived more than 5 years after surgery for metastatic melanoma. Overall 5-year survival was 52,4% of patients with DFI>36 months versus 22,6% with DFI<36 months. Five-year survival with negative lymph nodes was 36,2%, while with positive lymph nodes - 0%.

Conclusion: Surgery as a component of multimodality treatment is justified, because it helps to achieve 5-year survival in that complex group of patients. Localization and histology of the primary tumor, number of metastases, DFI and status of intrathoracic lymph nodes are the most important prognostic factors.

PD6-2-2 **Mesothelioman and Other Thoracic Malignancy, Mon, 16:00 - 17:30**

Genomic profiling of malignant pleural mesothelioma with array-based comparative genomic hybridization

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We performed genome-wide array-based comparative genomic hybridization (CGH) analysis of malignant pleural mesotheliomas (MPMs) to identify regions that display DNA copy number alterations. Seventeen primary tumors and 9 cell lines derived from 22 individuals were studied. Regions of genomic aberrations observed in > 20% of individuals were 1q, 5p, 7p, 8q24, and 20p of gains, and 1p36.33, 1p36.1, 1p21.3, 3p21.3, 4q22, 4q34-qter, 6q25, 9p21.3, 10p, 13q33.2, 14q32.13, 18q, and 22q of losses. Two regions at 1p32.1 and 11q22 showed a high copy gain. The 1p32.1 region contained a protooncogene, JUN, and we further demonstrated overexpression of JUN with real-time polymerase chain reaction (PCR) analysis. Since JUN overexpression was observed in primary tumors but not in cell lines, our findings suggested that induction of JUN expression was involved in the development of MPM cells in vivo, which also might result in gene amplification in a subset of MPMs. We also analyzed the 11q21-23 amplification region and found that YAP1 was located in this region. Meanwhile, the most frequent alteration was the 9p21.3 deletion, which includes the p16INK4a/p14ARF locus. With PCR analysis, we determined the extent of the homozygous deletion regions of the p16INK4a/ p14ARF locus in MPM cell lines, which indicated that the deletion regions varied among cell lines. Our results provide new insights into the genetic background of MPM, and also give some clues to manifest a new molecular target therapy for MPM.

PD6-2-3 **Mesothelioman and Other Thoracic Malignancy, Mon, 16:00 - 17:30**

The role of serummarkers and differentiation between malignant mesothelioma and other malignancies

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Background: Serum markers have been tested in patients with malignant effusions for their ability to differentiate malignant pleural mesothelioma from other causes. So far no single tumor marker has been identified that differentiates mesothelioma from other causes. We therefore combined three different serum markers and report our

findings in a series of patients with different pleural malignancies and healthy controls.

Methods: A retrospective analyses of 179 patients and 50 healthy controls was performed. Seventy-four patient had a confirmed mesothelioma, and 110 patients had non small cell lung cancer of whom 56 with an adenocarcinoma. Soluble Mesothelin Related Protein (SMRP), Cyfra 21.1 and Carcino Embrionic Antigen (CEA) were tested in serum at diagnosis of patients presenting with a suspected pleural malignancy.

Results: Cyfra 21.1 was able to discriminate healthy from any thoracic malignancy with a sensitivity of 65% and specificity of 96%. The combination of CEA and SMRP was most accurate in differentiating mesothelioma from NSCLC (area under receiver operating characteristics curve 0.94, 95% CI 0.90-0.97) and could thus identify 152 of 179 (85%) cases.

Conclusions: By using 2 serum markers (CEA and SMRP) we are able to discriminate mesothelioma from NSCLC with high sensitivity, while Cyfra 21.1 is useful in the discrimination of normal vs. malignancy.

The relationship between groups and tumor markers by logistic regression models in univariate and multivariate analyses.

Tumor marker	OR	95% CI	p-value
Univariate			
Cyfra 21.1 (µgr/l)	1.00	0.99-1.02	0.515
SMRP (nmol/l)	1.64	1.26	<0.001
CEA (µgr/l)	0.45	0.33-0.61	<0.001
Multivariate			
SMRP (nmol/l)	2.02	1.27-3.21	0.003
CEA (µgr/l)	0.43	0.30-0.62	<0.001

PD6-2-4 Mesothelioman and Other Thoracic Malignancy, Mon, 16:00 - 17:30

Combined modality treatment for Malignant Pleural Mesothelioma (MPM)

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Background: Guidelines for the treatment of MPM do not advocate single modality treatment with either radiotherapy or surgery only. Since newer and more active chemotherapy became available for MPM, combined modality treatment (CMT) for earlier stages of MPM has been studied more intensively. We here report on the LLCG phase II prospective study of CMT for MPM patients, combining neoadjuvant chemotherapy, surgery and postoperative radiotherapy.

Methods: All consecutive MPM patients, candidates for CMT between March 2003 and December 2006, were included. Treatment consisted of induction chemotherapy with cisplatin 75 mg/m^2 and pemetrexed 500 mg/m^2 on day 1 (3 cycles, q 3 wks), extrapleural pleuropneumonectomy (EPP), and radiotherapy (mostly by intensity-modulated radiotherapy; 54Gy/1.8Gy). Inclusion criteria were: age < 70 years, WHO Performance Status ≤1, medically fit for pneumonectomy, staging of cT2N2M0 or less for epithelial subtypes, and cT2N1M0 or less for other histologic subtypes. All patients underwent thorough staging with PET-CT imaging, mediastinoscopy and laparoscopy.

Results: A total of 29 MPM patients (men/women: 28/1; mean age ± SD: 57.58 years ± 7.57) were included. Histologic subtypes were: epithelial (n=23); desmoplastic (n=1); sarcomatous (n=1); mixed (n=4). Five patients were found progressive after induction chemotherapy and went off protocol. Twenty patients underwent EPP (left/right EPP: 7/13; R0/R1 resection 16/4), while 4 patients had an exploratory thoracotomy (irresectable MPM due to chest wall or oesophageal invasion). Resectability and complete resection rates were 20/24 (83.3%) and 16/24 (66.6%), respectively. In one patient (male; 50 yrs; cT1bN0M0, left side MPM), a complete pathological response was observed. The in-hospital postoperative mortality was 2/24 (8.33%) and one re-thoracotomy for bleeding needed to be performed. Because 1 patient was estimated ineligible for irradiation (unique kidney) and another rapidly developed bone metastases, 16 patients finally started postoperative radiotherapy. One patient died just after ending radiotherapy (BOOP) and another didn't complete radiotherapy (small bowel obstruction and respiratory infection). At the end, 15/29 patients completed the entire CMT protocol. Median survival (after MPM diagnosis) was 9.01 months for all 29 patients who started CMT and 20.6 months for the 15 patients who completed CMT, respectively.

Conclusions: This study demonstrates that CMT with neoadjuvant chemotherapy, EPP and postoperative radiotherapy is feasible in dedicated centres and for well-elected MPM patients. The median survival for those patients who completed CMT is promising, but longer follow-up and validation of these results in future randomized controlled trials will be of interest.

PD6-2-5 Mesothelioman and Other Thoracic Malignancy, Mon, 16:00 - 17:30

FDG-PET in thymic epithelial tumors: Relationship between WHO histologic subtype and maximum tumor SUV

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Background: 18F-Fluorodeoxy glucose positron emission tomography (FDG- PET) is a promising tool for evaluating suspected malignancies throughout the body. Although there have been a few reports on FDG-PET for imaging thymic epithelial tumors, its clinical usefulness and significance are still unclear. The objective of this study was to analyze the degree of FDG-uptake in thymic epithelial tumors of different WHO histologic subtypes and stages.

Methods: We retrospectively reviewed FDG-PET findings in 35 patients with thymic epithelial tumors (25 with thymomas and 10 with thymic carcinomas) treated between September 2002 and March 2007 at Shizuoka Cancer Center. Twenty-three (66%) patients underwent surgical resection and the remaining 12 underwent only needle biopsy. The histologic subtype was determined according to the WHO classification in all 10 thymic carcinomas and 21 resected thymomas. The stage was determined according to Masaoka classification in all 25 thymomas. FDG uptake in tumor using the maximum Standardized Uptake

